



**BIOMETRICS**  
DEPARTMENT OF DEFENSE

# **DoD and Biometrics**

## **DoD Cyber Crime Conference (DC3)**

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Contractor Support  
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[www.biometrics.dod.mil](http://www.biometrics.dod.mil)  
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Clearwater, FL**



# Agenda

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- **Biometrics 101**
- **Changing Security Requirements In The DoD**
- **DoD Biometrics**
- **DoD Biometric Implementations**
- **Biometrics: Applied To DC3**



# Biometrics 101

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Biometrics (bi-o-'me-triks)

***Merriam-Webster:*** The statistical analysis of biological observations and phenomena  
***Department of Defense (DoD):*** Biometrics are measurable physical characteristics or personal behavioral traits used to recognize the identity, or verify the claimed identity, of an individual



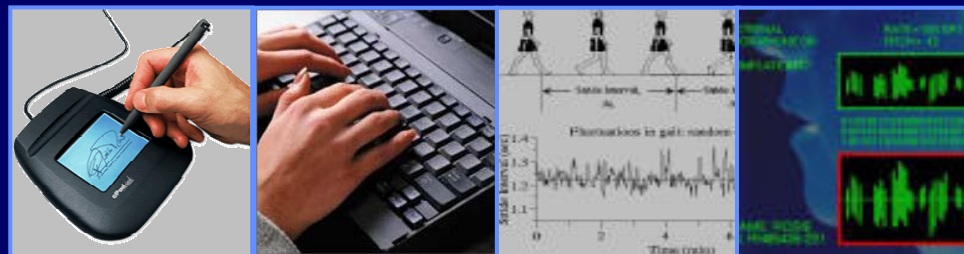
# Biometrics 101 (Continued)

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**Physiological biometrics – derived from the form or composition of the human body**



**Behavioral biometrics – based on an action taken by a person; measured over a period of time**





# Levels of Authentication

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## Something you have:

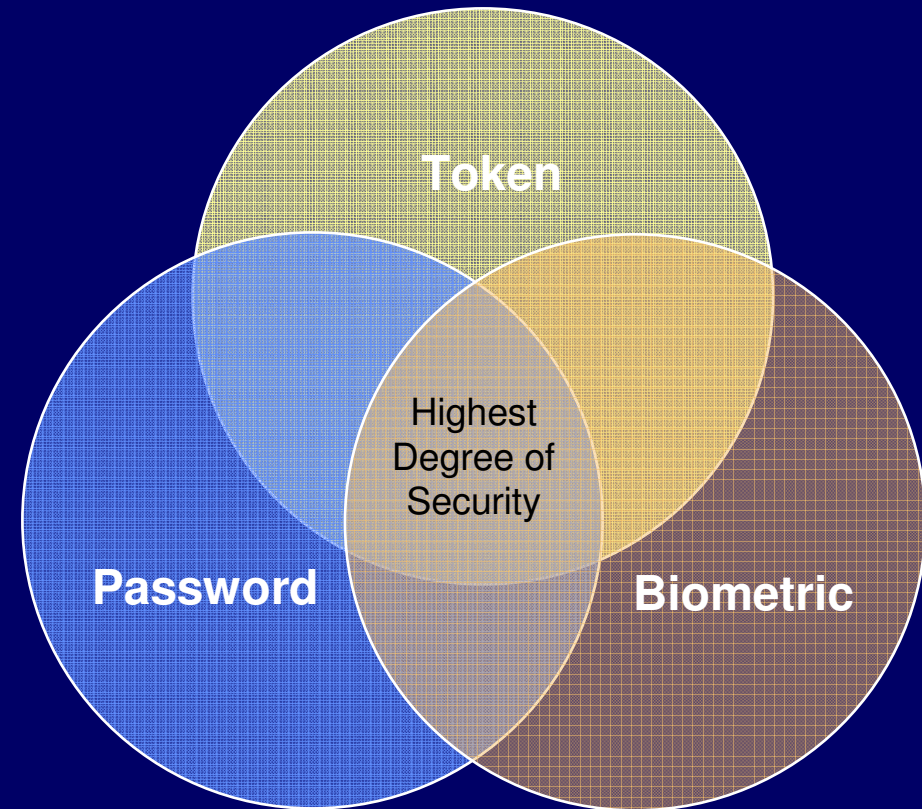
- Token
  - Key
  - Card or badge

## Something you know:

- Password
- PIN
- A memory “unique” to you

## Something you are:

- Biometric
  - Physiological
  - Behavioral



**Security is enhanced by adding levels of authentication**



# Biometric Authentication

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- ***Enrollment*** – The process of collecting biometric samples from a user and the subsequent preparation, encryption, and storage of biometric reference templates representing that person's identity.
- ***Verification*** – The one-to-one process of comparing a submitted biometric sample against the biometric reference template of a single enrollee whose identity is being claimed.
- ***Identification*** – The one-to-many process of comparing a submitted biometric sample against all of the biometric reference templates on file to determine whether it matches any of the templates and, if so, the identity of the enrollee whose template was matched. There are two types of identification: positive and negative.



# How Biometrics Work

## *Enrollment Process*

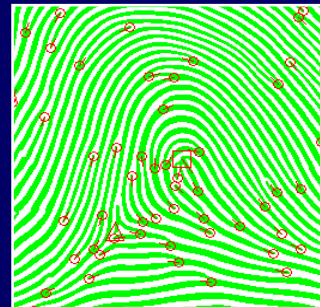
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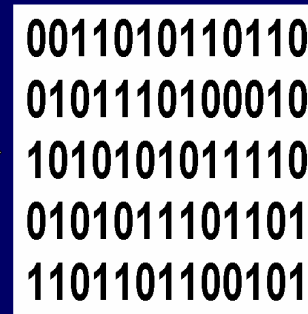
Biometric  
Presentation



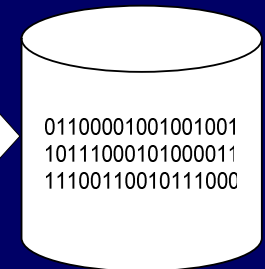
Capture &  
Preprocessing



Feature  
Extraction



Template  
Creation



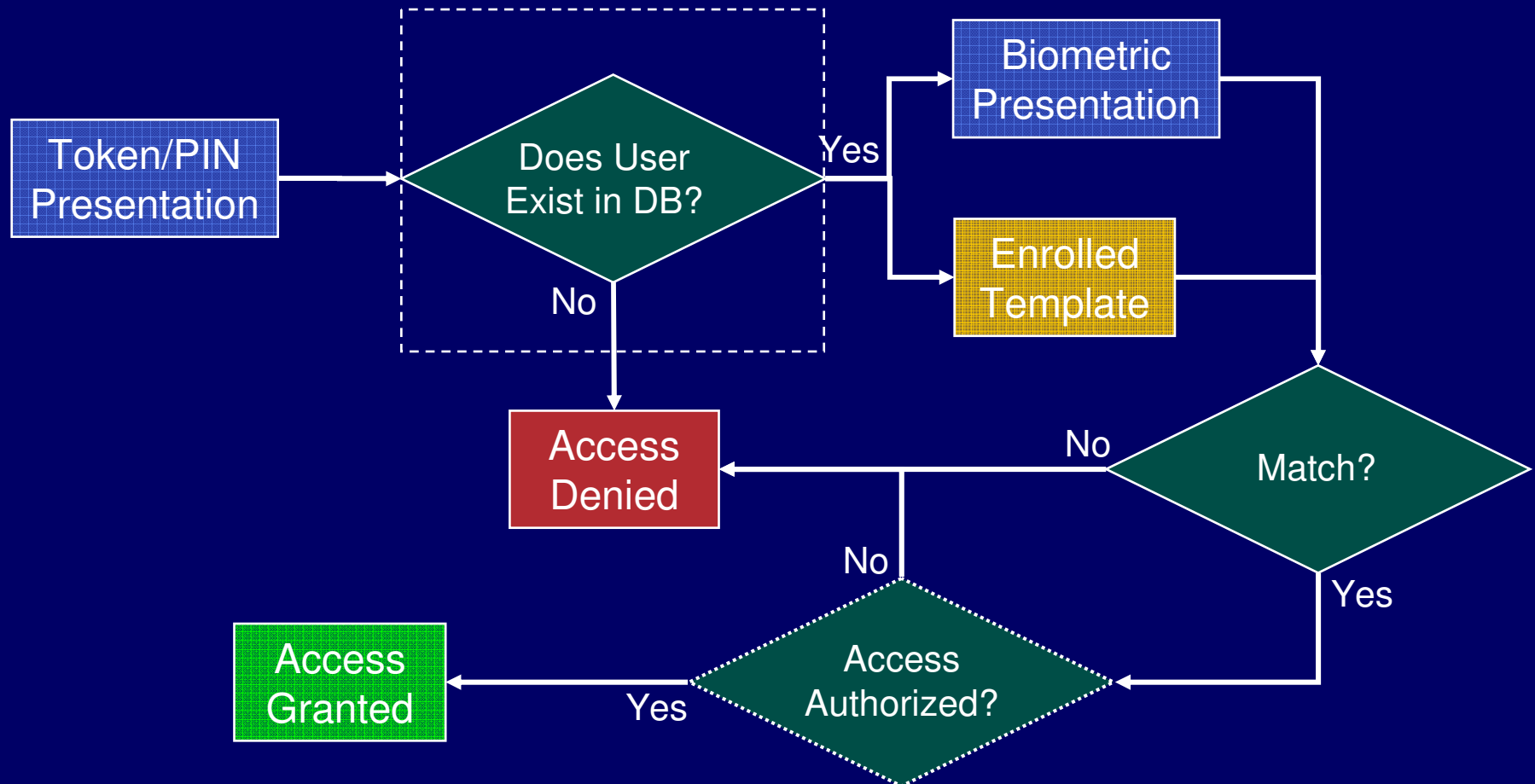
Storage



# How Biometrics Work

## *Verification Process*

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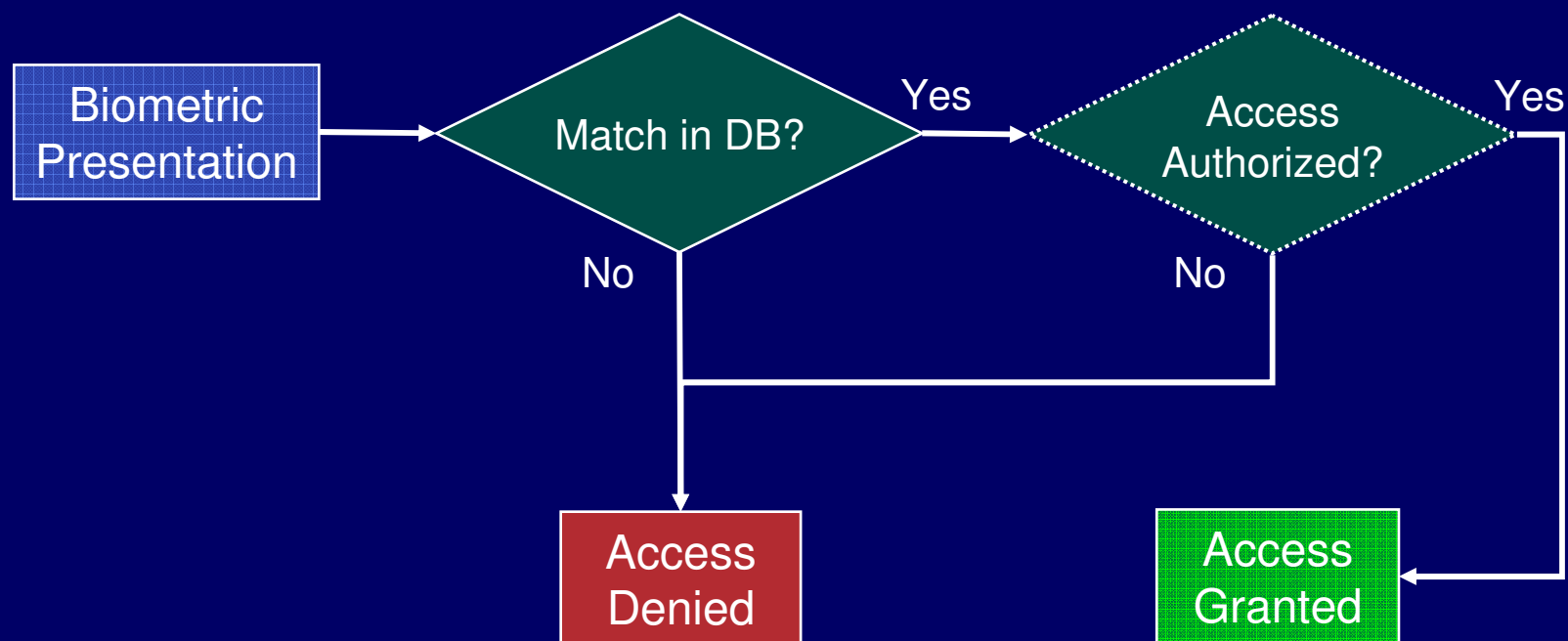






# How Biometrics Work

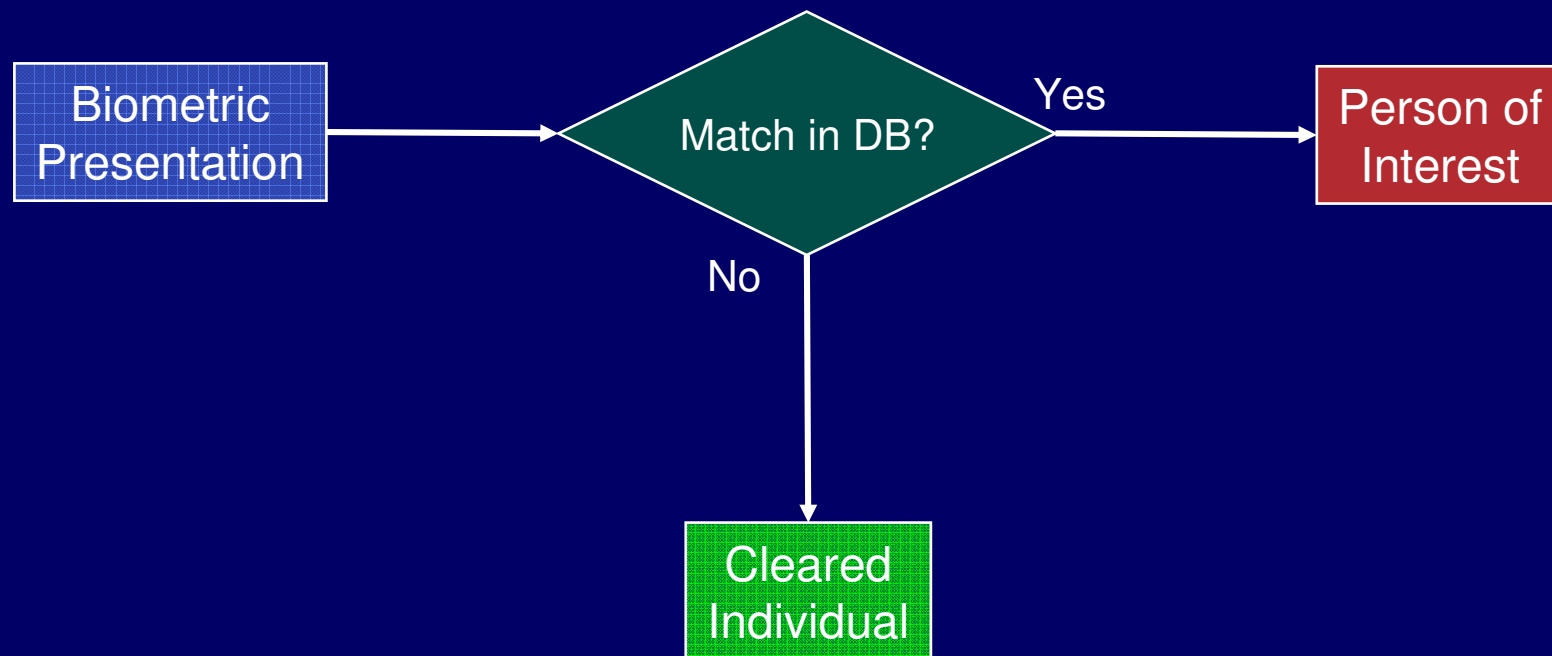
## *Positive Identification Process*





# How Biometrics Work

## *Negative Identification Process*

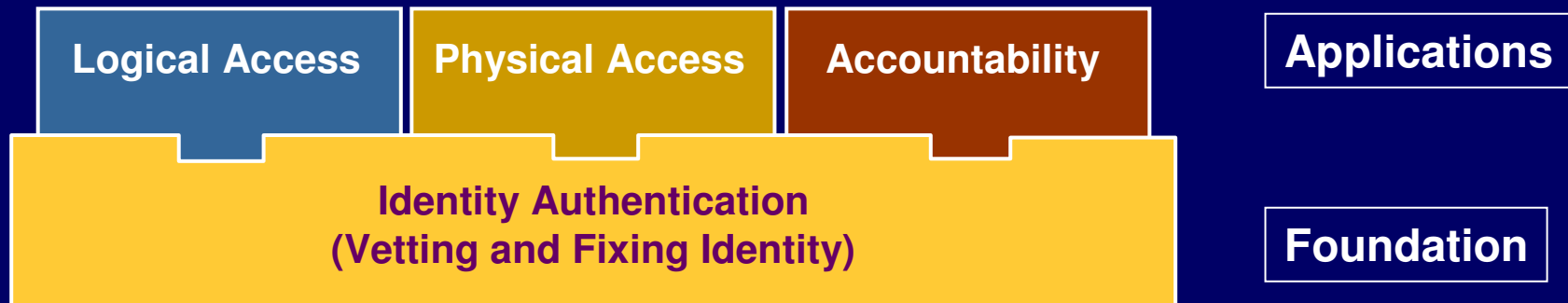




# How Biometrics are Used

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- **Logical Access**
  - Computer networks, systems, and files
- **Physical Access**
  - Installations, facilities, and spaces
- **Accountability**
  - Record or audit an individual's transactions





# Changing Security Requirements

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## Changes in today's military...

- Global operations
- Distributed working & warfighting scenarios
- Increased reliance on information technology

## Objective



### 100% Identity Assurance:

- Biometrics
- Enterprise Approach

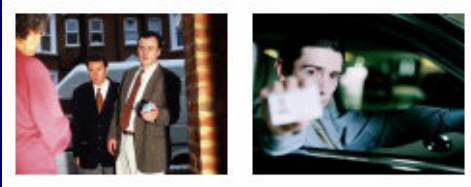
## Interim



### Credentials:

- Tokens
- PINs & Passwords

## Legacy



### Claimed Identity:

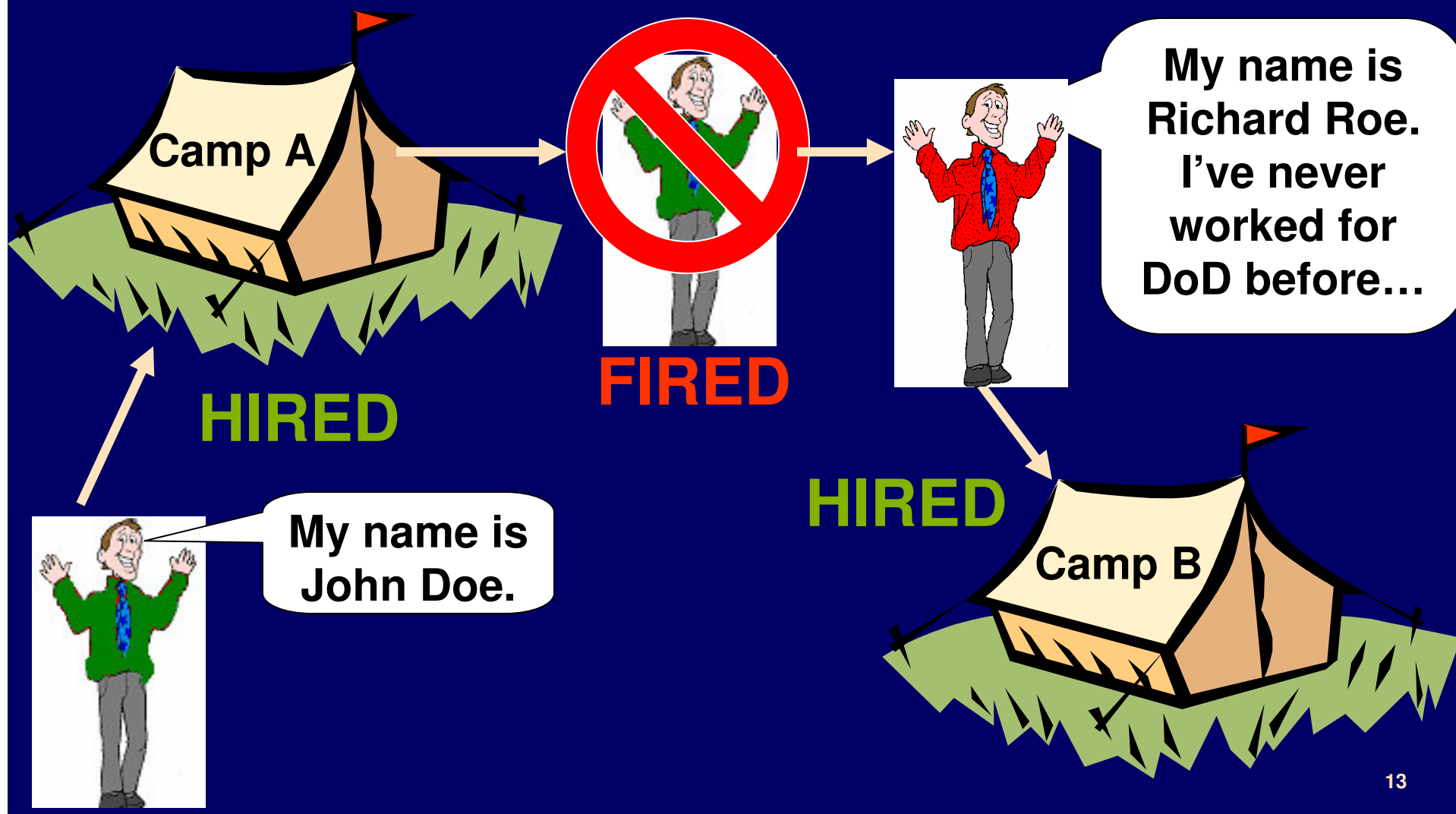
- "Official" Documents

...require a paradigm shift in security.

- Connect identity to biometrics
- Link actions with identity
- Employ a "human-centric" approach



# Example of a Problem in a National Security Context

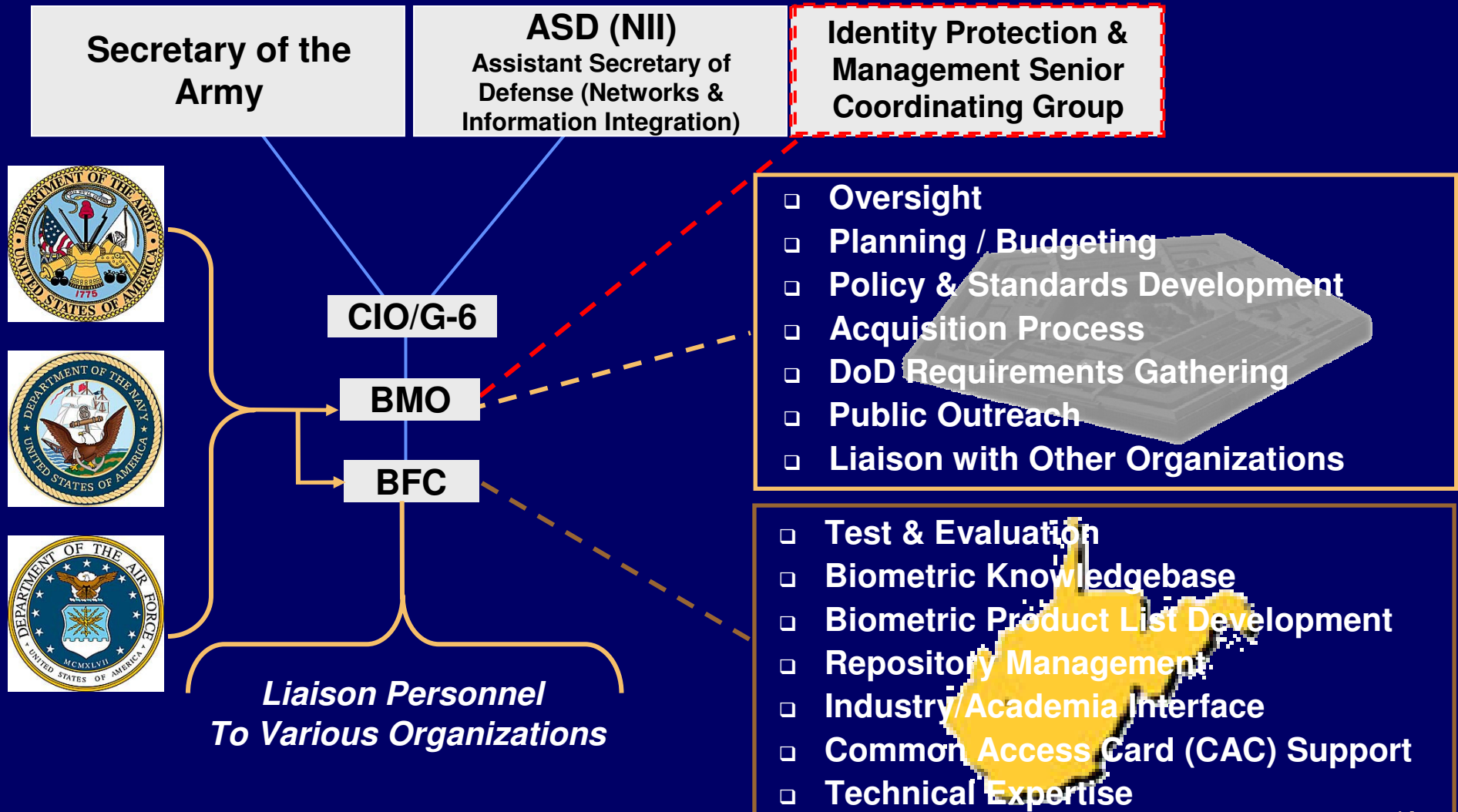




# DoD Biometrics – Organization

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## Chain of Command

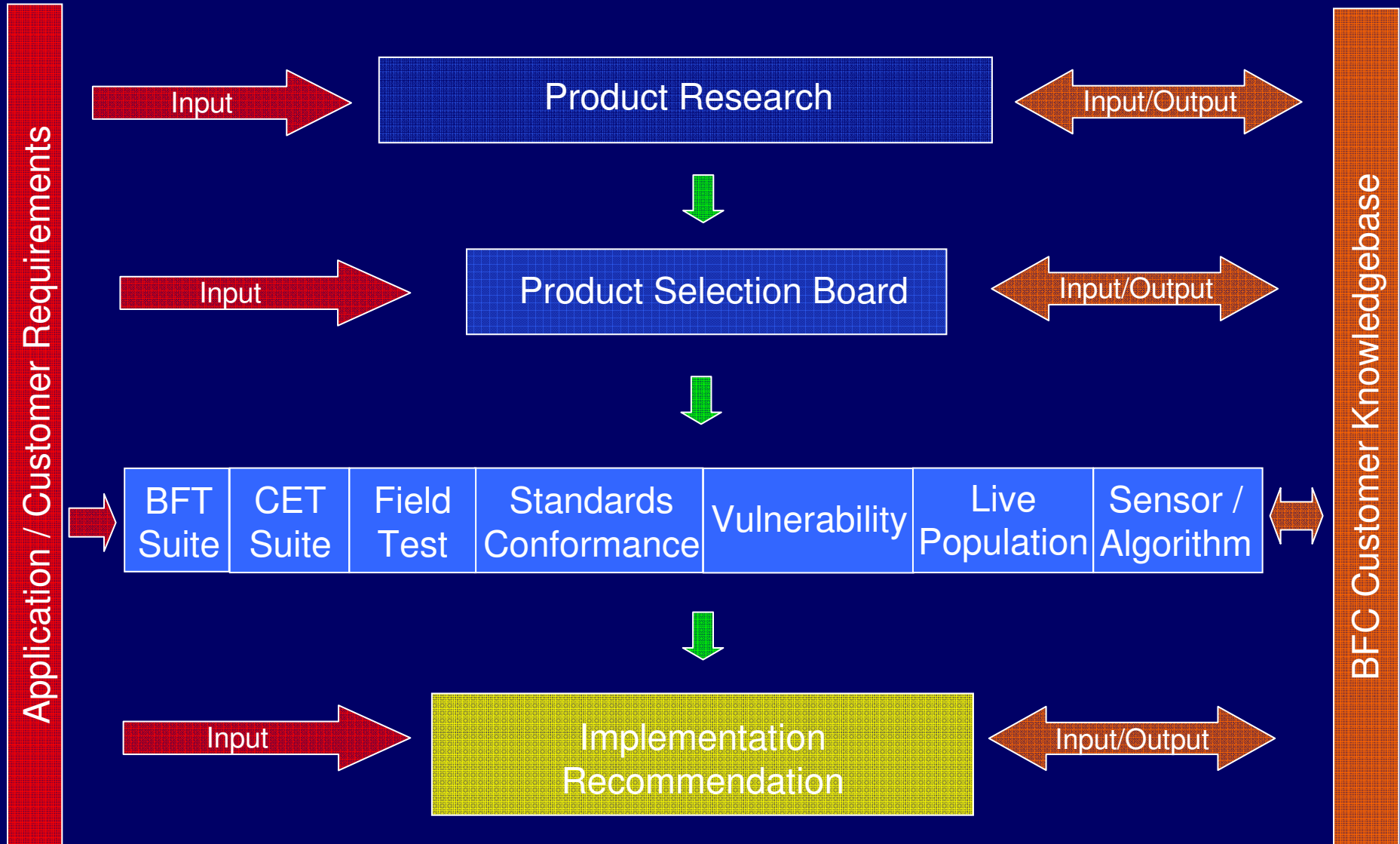




# Testing System Life Cycle

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# Examples of Biometric Support to DoD Operations & Business Practices

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## Identity Management

- Global War on Terrorism
  - Biometrics Automated Toolset
  - DoD Automated Biometric Identification System
- Maritime Interdiction Operations



## Logical Access Control

- OASD for Networks and Information Integration
- OSD Comptroller's Office

## Physical Access Control

- Defense Biometric Identification System
- Scott Air Force Base hand geometry system





# Indicators of Biometrics

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Some are  
obvious . . .



Hand Geometry



Face Recognition



Keystroke



Iris Devices



Voice Microphones



Fingerprint Devices



Signature

... some  
are not!



## What Biometrics Add

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- **Most biometric devices log authentication attempts and other system events – trail of evidence**
- **Biometric devices could be used to protect certain areas, machines, files – proof of ownership**
- **Biometrics could be used internally for evidence tracking (hand receipts) – accountability**



# Biometric Uses

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- **Physical access protection**
- **Encryption/authentication of files and emails using biometric template**
- **Computer/network logon**
- **Controlled website access**



# Contact Information

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